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**CASE REPORT****Ovarian Pregnancy**Widayat<sup>1</sup>, Ariadi<sup>2</sup>

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**Abstract**

**Objective:** To report cases of ovarian pregnancy

**Materials and Methods:** This article describes a case report of a 33 year old woman, with a diagnosis of Ovarian Pregnancy at 6-7 weeks gravid G2P0A1H0. The patient came to the emergency room Dr. M. Djamil Padang. The ultrasound examination gives the impression of an ectopic pregnancy in the right ampulla tube. After laparoscopy, an ectopic pregnancy was seen in the right ovary without bleeding. Right ovarian pregnancy impression. Partial Oophorectomy was performed and tissue evacuation with bleeding during the procedure  $\pm$  30 cc.

**Results:** Patients receiving laparoscopic intervention showed an ectopic pregnancy in the right ovary without bleeding, the left ovary was within normal limits. Right ovarian pregnancy impression. Partial Oophorectomy was performed and tissue evacuation with bleeding during the procedure  $\pm$  30 cc. The tissue was examined for histology of anatomic pathology.

**Conclusion:** Ovarian pregnancy is one of the rarest forms of ectopic pregnancy, it is sometimes difficult to diagnose because it can be confused with tubal ectopic pregnancy or hemorrhagic ovarian cyst. Pregnancy ovaries can rupture in the first trimester of pregnancy.

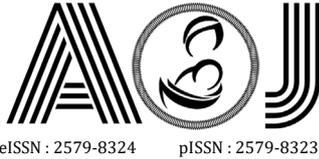
**Keywords:** Ovarian Pregnancy, Laparoscopy, Partial Oophorectomy

**INTRODUCTION**

Ectopic pregnancy is characterized by implantation and development of the embryo outside the uterine cavity. Ectopic pregnancies can occur in the ovaries (3.2%), or the abdomen (1.3%). Hertig estimated that ovarian pregnancy occurred in 1 of 25,000 to 40,000 pregnancies. Ovarian pregnancy is characterized by indistinguishable clinical symptoms and a difficult ultrasound diagnosis.<sup>1,2</sup>

The causes of ovarian ectopic pregnancy are implantation into the ovary or lack of follicular expulsion. Pregnancy ovaries are classified into primary and secondary. Primary occurs when the ovum is fertilized while still in the follicle. Secondary occurs when fertilization occurs in the tubes and the product of conception implants in the ovarian stroma.<sup>3,4</sup>

Ovarian pregnancy is one of the rarest forms of ectopic pregnancy, sometimes difficult to diagnose because it can be confused with tubal ectopic pregnancy or hemorrhagic ovarian cyst. Pregnancy ovaries can rupture in the first trimester of pregnancy.<sup>1,2</sup>



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The incidence of ovarian pregnancies with natural conception was 1 in 59,740 to 1 in 1,439 deliveries, representing 3.3% of all ectopic pregnancies, and on the longer observation account for 1 in 1,100 or 5.2%. According to Hussain et al., 2010, the incidence varies from 1 in 70,000 to 1 in 60,000 deliveries and about 1% to 3% of all ectopic pregnancies.<sup>2,3</sup>

The preoperative definitive diagnosis is often difficult to establish, and with a few exceptions, the initial diagnosis is made on the operating table and the final diagnosis is by histopathology alone. The treatment of choice for ovarian pregnancy is usually ovarian wedge resection or oophorectomy, there is also a place for drug therapy in certain patients.<sup>4,5</sup>

In this case report, we report a case of intact primary ovarian pregnancy under laparoscopic management with ipsilateral ovary preservation. From MEDLINE data from 1984 to 2000, only two cases of laparoscopic management of organ preservation in patients with ovarian stimulation were reported.<sup>3,5</sup>

## EPIDEMIOLOGY

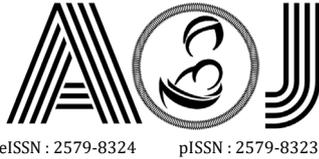
In the study conducted by Goyal et al, there were 523 ectopic pregnancies in 33,285 births (1.7%). In ectopic pregnancies, fourteen of these were ovarian, four cervical, three abdominal and 502 tubal pregnancies. All patients met Speigelberg's criteria. The mean age of the patients was 27 years, with a mean gestational age of 42 days. Four patients complained of amenorrhoea. The most common complaint is acute abdominal pain followed by vaginal bleeding. There was a history of IUD use in 5 cases. History of infertility in two patients, one of whom was induced ovulation and insemination in the previous cycle. The yield of  $\beta$ HCG ranges from 1600-3200 IU / L.<sup>4,6</sup>

The reported incidence after In Vitro Fertilization (IVF) or embryo transfer (ET) was 0.27% per clinical pregnancy.<sup>5,7,8</sup>

## MATERIALS AND METHODS

This article describes a case report of a 41 year old woman with a diagnosis of ectopic pregnancy at 11-12 weeks G5P4A0H4 gravid. The patient came to the obstetrics and gynecology Polyclinic, Dr. M. Djamil Padang.

The ultrasound examination gives the impression of an ectopic pregnancy in infundibulum tube. Performed laparoscopy showed an ectopic pregnancy in the right ovary without bleeding, the left ovary was within normal limits. Right ovarian pregnancy impression. Partial Oophorectomy was performed and tissue evacuation with bleeding during the procedure  $\pm$  20 cc. The network is checked for PA.<sup>10,11</sup>



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**ETIOLOGY**

The cause of ovarian pregnancy is not clear, and appears to be secondary to reflux of fertilized oocytes into the ovaries. Several hypotheses mention impaired release of the ovum from follicle rupture, tubal malfunction and inflammatory thickening of tunica albugenia. Empty follicle syndrome, in which there are no oocytes from mature ovarian follicles with normal follicular development and normal estradiol levels, after control of ovarian hyperstimulation for assisted reproductive technology cycles, can also be a cause of primary ovarian pregnancy.<sup>5,9</sup>

Ectopic pregnancy is a known complication of IVF and embryo transfer. The incidence of ovarian pregnancy increases to 1 in 938 to 1 in 375 clinical pregnancies. The share of ovarian pregnancies was 1.7 to 5.9% of all ectopic pregnancies unchanged. Embryo reversal migration after deep deposition of the uterine cavity, use of large volume and culture fluid pressure during embryo transfer, presence of tubal pathology and pelvic inflammatory disease are considered to be contributing factors. The lower head after ET also predisposes the embryonic reverse migration factor. Difficult ET can also stimulate intermediate zone contractions which increase the risk of an ectopic pregnancy.<sup>3,5,10</sup>

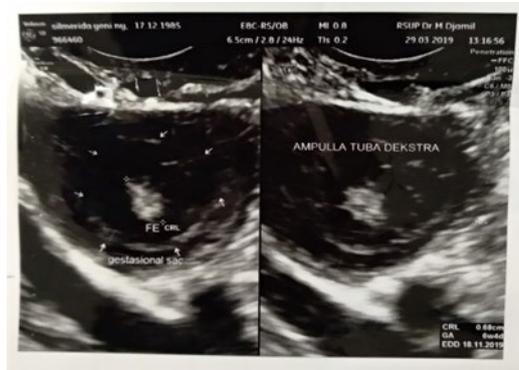
According to Scutiero et al. 2012 and Odejinmi et al. 2009, ectopic ovarian pregnancies after natural conception range from 1 in 2000 to 1 in 60,000 pregnancies and about 3% of all ectopic pregnancies.<sup>1,2,3</sup>

The incidence of ovarian pregnancy after ovarian stimulation and intrauterine insemination (IUI) is such a rare condition that in the literature up to 2000 only two cases were reported.<sup>3,4</sup>

**CASE REPORT**

A 33 year old female patient, diagnosed with ectopic pregnancy at 7-8 weeks gravid G2P0A1H0. The patient previously complained of lower right abdominal pain. patient realizes that she is pregnant, with LMP: 07 February 2019. The results of physical examination found anemic conjunctiva (- / -), tenderness in the lower right abdomen.

The results of deep examination with vaginal touch (VT) showed shaking pain of the portio (-). Then the culdosynthesis examination was carried out with the result (-). After being suspected of having an ectopic pregnancy, abdominal ultrasound and laboratory investigations were performed. Positive pregnancy test. On ultrasound examination found Uterus AF measuring 6.42 cm x 3.79 cm x 4.22 cm. Gravid endometrium. Extra uterine GS was seen, CRL 0.68 cm according to gestational age 6-7 weeks. No intra-abdominal free fluid was seen. The ultrasound examination gives the impression of an ectopic pregnancy in the right ampulla tube.<sup>12,13,14</sup>



**Figure 1.** Extra uterine fetus

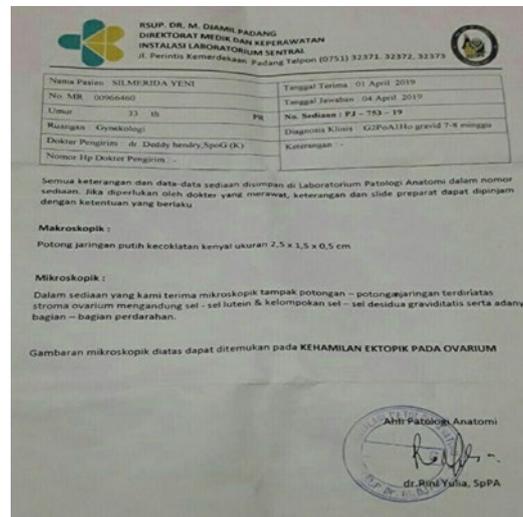


**Figure 2.** Uterus

Performed laparoscopy showed an ectopic pregnancy in the right ovary without bleeding, the left ovary was within normal limits. Right ovarian pregnancy impression. Partial Oophorectomy was performed and tissue evacuation with bleeding during the procedure  $\pm$  20 cc. The tissue was examined for anatomical pathology.<sup>12,15</sup>



**Figure 3.** Conception results (a), partial Oophorectomy (b), Hecting (c), Partial Oophorectomy (d)



**Figure 4.** Histology results from the anatomical pathology laboratory are microscopic images of ectopic pregnancy in the ovaries.

## RESULTS AND DISCUSSION

A case of ovarian pregnancy has been reported. The diagnosis is confirmed by careful physical, laboratory and ultrasound examination. Based on these tests, a positive pregnancy test and ultrasound examination were obtained found a uterus AF measuring 6.42 cm x 3.79 cm x 4.22 cm. Extra uterine GS was seen, CRL 0.68 cm according to gestational age 6-7 weeks. No intra-abdominal free fluid was seen. The ultrasound examination gives the impression of an ectopic pregnancy in the right ampulla tube. After laparoscopy, an ectopic pregnancy was seen in the right ovary without bleeding. Right ovarian pregnancy impression. Partial Oophorectomy was performed and tissue evacuation with bleeding during the procedure  $\pm$  20 cc.

Histology results from the anatomical pathology laboratory are microscopic images of ectopic pregnancy in the ovaries.<sup>11,12,15</sup>

In diagnosing ovarian pregnancy there are problems of its own. Physical symptoms and findings, such as abdominal pain, irregular menstruation, vaginal bleeding, palpation of adnexal masses and collapse of hypotension, are the same as for tubal pregnancy, hemorrhagic corpus luteum or ovarian cyst rupture. Ovarian pregnancy can be misdiagnosed by rupturing a corpus luteum cyst in 75% of cases. Approximately 50% of ovarian pregnancies after ovarian stimulation are diagnosed as asymptomatic.<sup>1,3</sup>

With ultrasound, the appearance of an ovarian pregnancy varies as does a tubal pregnancy. The defining characteristic that differentiates it from tubal pregnancy in the first trimester is the visualization of the embryonic structures in the amniotic cavity in the ovary. Transvaginal ultrasound is the method of choice in the diagnosis of not only intrauterine but also extrauterine pregnancy. It requires high suspicion as well as skill in ultrasound. The presence of an ectopic pregnancy can be determined by diagnostic criteria: a large ecogenic

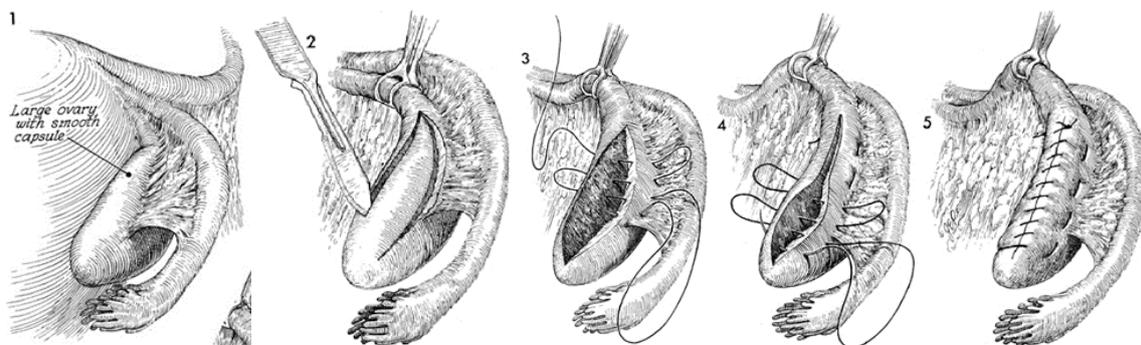
ring with a lucent internal eco-area on the surface of the ovary; the presence of an ovarian cortex, including the corpus luteum or follicles around the mass; and ring ecogenicity is usually higher than that of the ovary. There is a hyperechoic picture of the vilosity surrounded by thickened hypoechoic ovarian tissue. Intrauterine findings include normal endometrium, pseudogestational sac, trilaminar endometrium and thin-walled decidual cysts. Although ultrasound can allow diagnosis, surgery (laparoscopy or laparotomy) remains the best method of diagnosis and management.<sup>1,2,3,5,6,12</sup>

Currently the golden standard for diagnosis of ectopic pregnancy is laparoscopy. But in the case of ovarian stimulation, there are additional problems. In the case report by Einkenl et al., 2000, localization of pregnancy could only be found by intraoperative transvaginal ultrasound after filling the pelvic with saline solution. Correct diagnosis of ovarian pregnancy during surgery is only possible in 28% of cases, because it is difficult to distinguish from a hemorrhagic corpus luteum from surgery.<sup>1,2,3</sup>

Due to insufficient macroscopic evaluation and the risk of misdiagnosis of a hemorrhagic corpus luteum or bloody lutein cyst, histology should be performed even in the case of ovarian stimulation. Histologically, the presence of trophoblastic cells in the ovarian tissue confirms the diagnosis of ovarian pregnancy.<sup>3,4</sup>

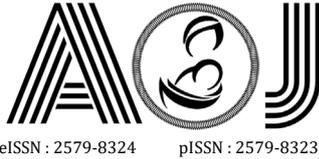
It should be noted that, after ovarian stimulation, the problems with diagnosis and management are exacerbated by the presence of a luteal cyst on the stimulated ovary.<sup>3</sup>

Management of early ovarian pregnancy is surgical, and in patients who wish to become pregnant, conservation of ovarian tissue is required. Therefore the choice of therapeutic procedures is partial ovariectomy (wedge resection), ovarian cystectomy or blunt dissection of trophoblast tissue. Ablation therapy such as ovariectomy or adnexectomy only for advanced cases or only for vital indications. Ovariectomy is usually performed on larger lesions and laparoscopy is performed for laser resection or ablation.<sup>1,3,11</sup>



**Figure 5.** Wedge resection of the ovary

Laparoscopic therapy after initial diagnosis is the method of choice because it is simpler, safer and more effective in the management of the majority of cases of ovarian ectopic



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pregnancy. In each case, a follow-up serum HCG concentration was required to detect possible persistence.<sup>2,3,11</sup>

After considering the possibility that oophorectomy and wedge resection might decrease ovarian reserve, Mittal et al. Treated ovarian pregnancies using laparoscopically-assisted methotrexate injection. Etoposide injection into the ovaries is another option and has fewer side effects.<sup>4,5,6</sup>

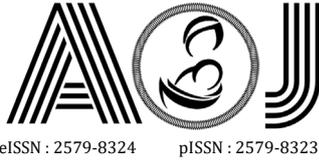
Only a few cases have reported medical management of ovarian pregnancy, using methotrexate, prostaglandin F<sub>2α</sub>, prostaglandin E<sub>2</sub> and estrogen or mifepristone (RU 486) in combination with prostaglandin F<sub>2α</sub>. According to Seiner et al., 1997, since it is impossible to diagnose ovarian pregnancy without performing at least a laparoscopy for biopsy, then if a laparoscopy is performed for diagnosis, definitive surgical management should be performed simultaneously. According to Einkenkel et al., 2000, noninvasive therapy such as methotrexate is only indicated as a second choice after organ preservation surgery with incomplete primary resection or trophoblast persistence.<sup>3,7,8</sup>

Candidates for patients receiving methotrexate therapy are hemodynamically stable. And there are several things that must be considered, namely:<sup>13</sup>

1. Medical therapy fails in about 5–10% of cases, and this rate will increase when the pregnancy has passed 6 weeks of age or if the mass is more than 4 cm in diameter;
2. Laboratory tests were performed, with optimal results, including liver function, kidney function and routine blood tests within normal limits.
3. Failure of medical therapy requires re-therapy either medicamentally or surgically. If there is a rupture condition of the mass of ectopic pregnancy (probability 5–10%) an emergency surgery is required;
4. If a patient is treated as an outpatient, there must be transportation available immediately if needed to take the patient to the hospital;
5. Symptoms and signs of tubal rupture such as vaginal bleeding, acute abdomen, weakness or even fainting should be reported immediately;
6. Until the ectopic pregnancy has been completely eliminated, sexual intercourse is not justified, alcohol is avoided, and folic acid supplements and pregnancy vitamins should also not be taken.

There are two methods of giving methotrexate, namely single dose and varied dose.<sup>14,15</sup>

1. Methotrexate 50 mg / m<sup>2</sup> intramuscularly (single dose) examination of beta-hCG levels on day 4 and day 7:
  - a. If the difference is > 15%, then check beta-hCG again every week until it is not detected;



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- b. If the difference is <15%, then another MTX is given and it is counted as the first day, then check the beta-hCG again every week
  - c. If fetal heart activity is still found on day 7, then another MTX is given and counted as the first day, then check the beta-hCG again every week.
  - d. When beta-hCG levels do not show a decrease or even an increase and fetal heart activity persists up to three times the MTX dose, so it must be followed by operative action.
2. Methotrexate 1 mg / kg intramuscularly on days 1, 3, 5, 7.  
Leukovorin 0.1 mg / kg intramuscularly on days 2, 4, 6, 8.

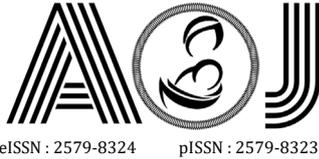
The injection was continued until the beta-hCG level showed a 15% reduction within 48 hours or after four doses of MTX were administered. Continue with weekly checks for beta-hCG levels until they are undetectable. The single dose of methotrexate is easier and simpler compared with the varied doses, the failure rate was also quite high compared to the varied doses of methotrexate. <sup>12,13,15</sup>

## CONCLUSION

An ectopic pregnancy is any pregnancy in which an egg fertilized by spermatozoa implants and grows outside the endometrium cavity of the uterus. Based on the place where the fallopian tube implants, it is the most common site for ectopic pregnancy implantation. Implantation of the ovaries, abdominal cavity, uterine cervical canal, rudimentary uterine horns and uterine diverticles is rare. Implant contraception is a subdermal insertion of contraceptive method containing only a long-acting, low-dose, reversible progestin for women. Careful prenatal examination is needed in making the diagnosis. This reported case is a case of KE with implant acceptors based on clinical findings, USG. <sup>10,13,15</sup>

The incidence of ovarian pregnancy is increasing due to the increasing incidence of infertility and the use of assisted reproductive technologies. Ultrasound can detect ovarian pregnancies in non-ruptured cases but cannot be easily distinguished from tubal pregnancies if they are ruptured. <sup>9,11</sup>

Ovarian pregnancy should be established as soon as possible when asymptomatic. In determining the method of therapy, the presence of rupture and patient's vital signs is an important factor. The priority of therapy is to prevent mortality. If there is still a desire for offspring, then organ preservation becomes the main goal, even in the case of ovarian stimulation. With current advances in minimally invasive surgery that depend on surgical skills, surgical techniques and equipment, laparoscopy will replace conventional surgery even in complicated situations. <sup>13,14,15</sup>



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**REFERENCES**

1. Abdulkareem T A, Eidan S M. Ectopic Pregnancy: Diagnosis, Prevention and Management. Intech journal. 2017.
2. Prawirohardjo, Sarwono. Ilmu Kebidanan. 2014. Bina Pustaka Sarwono Prawirohardjo. Jakarta
3. Tehrani HG, Hamoush Z, Ghasemi M, Hashemi L. Ovarian ectopic pregnancy: A rare case. Iran J Reprod Med. 2014 April; 12(4): p. 281-4.
4. Yuksel MA, Abali R, Unal F, Temell, Boran AB. Primary ovarian pregnancy: a report of four cases. Eastern J of Med. 2011; 16: p. 277-80.
5. Einkenkel J, Baier D, Horn LC, Alexander H. Laparoscopic therapy of an intact primary ovarian pregnancy with ovarian hyperstimulation syndrome. Hum Rep. 2000; 15(9): p. 2037-40.
6. Ashrafganjoei T, Honar BN, Defae S. Thirteen weeks ovaarian pregnancy following in vitro fertilization for primary infertility treatment: A case report. Iran J Reprod Med. 2014 November; 12(11).
7. Goyal LD, Tondon R, Goel P, Sehgal Ovarian ectopic pregnancy: A 10 years' experience and review of literature. Iran J Reprod Med. 2014 December; 12(12): p. 825-30.
8. Han M, Kim J, Kim H, Je G, Hwang T. Bilateral ovarian pregnancy after in vitro fertilization and embryo transfer in a patient with tubal factor infertility. J of Assisted rep and Gen. 2004 May; 21(5).
9. Dhorepatil B, Rapol A. A rare case of unruptured viable secondary ovarian pregnancy after IVF/ICSI treated by conservative laparoscopic surgery. J of Hum Rep Sci. 2012 Jan-Apr; 5(1).
10. Panda S, Darlong IM, Singh S, Borah T. Case report of a primary ovarian pregnancy in a primigravida. J Hum Reprod Sci. 2009 Jul-Dec; 2(2): p. 90- 1.
11. Narvekar S, Vijaykumar P, Shetty N, Gupta N, Ashwini G, Rao K. Unruptured ovarian pregnancy following in-vitro fertilization: Missed diagnosis followed by successful laparoscopic management. J Hum Reprod Sci. 2008 Jan-Jun; 1(1).
12. Koroglu M, Kayhan A, Soylu FN, Erol B, Schmid-Tannwald C, Gurses C, et al. MR imaging of ectopic pregnancy with an emphasis on unusual implantation sites. Jpn J Radiol. 2013 November; 31: p. 75-81.
13. Sepilian VP, Wood E. Ectopic pregnancy [internet]. New York: Medscape e; 2015
14. Corrigan KJ, Kowalzyk DR. Ectopic ovarian pregnancy in a second- trimester patient. Am J of Emergency Med. 2007; 25: p. 1085.e3-1085.e4.
15. Cunningham FG, Leveno KJ, Bloom SL, Hauth JC, Rouse DJ, Spong CY. Ectopic Pregnancy. In Cunningham FG, Leveno KJ, Bloom SL, Hauth JC, Rouse DJ, Spong CY. William Obstetrics 23rd Edition. New York: McGraw Hill; 2010. p. 238-5